S O I L C O N S E R V A T I O N L I T E R A T U R E
SELECTED CURRENT REFERENCES

V.4 July/August,1940 No.4

TOO BUSY TO READ.

An hour with a book would have brought to his mind
The secret that took him a whole year to find.
The facts that he learned at enormous expense
Were all on a library shelf to commence.
Alas! for our hero; too busy to read,
He was also too busy, it proved, to succeed.
We may win without credit, or backing, or style,
Without patience or aptitude, purpose or wit-
We may even succeed if we are lacking in grit;
But take it from me as a mighty safe hint,
A civilized man cannot win without print.
(The Kalends, August 1939)

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Mildred Benton
Librarian

PERIODICAL ARTICLES

American Scientific Congress

[American scientific congress] Papers read before the ...congress. Science - Sup.91(2369):8,10,12. May 24,1940.

Of interest to soil conservationists were the following papers,brief abstracts of which are given:L.G.Polhamus on rubber trees to conserve the soil;Paul Sears on land load.

Beavers

Carhart,A.H. Colorado garners her beaver. Amer.Forests 46(2):69-71, 89,96,illus. February 1940.

Under protection,beavers once nearly exterminated have increased to an estimated 85,000.Research and management are proceeding simultaneously and animals are being transplanted from areas where they prove troublesome to mountain streams where their dam-building will be of benefit in silt and flood control and water and fish conservation. Fruit crops have been saved by releasing water impounded by beavers into irrigation systems.A water commissioner on the Cimarron River states that his district gets twice as much water as it did before the beavers built numerous ponds in the headwaters of that stream. Abs.U.S.Bur.Biol.Survey.Wildlife Rev.27:22. May 1940.

Carr,W.H. Beaver and birds. Bird Lore 42(2):141-146,illus. Mar./ Apr.1940.

Ecological changes following restoration of beavers to the Palisades Interstate Park;the animals increased from 3 pairs introduced in 1920 to about 150 individuals in 1939.Water and soil conservation and creation of habitat for many forms of wildlife are among the benefits enumerated. Abs. U.S.Bur.Biol.Survey.Wildlife Rev.27:9-10. May 1940.

Fox,A.C. Beavers as water conservationists. N.Dak.Outdoors 2(9):5-6, illus. March 1940.

Notes on the increase(6 to 40) and spread (4-6 miles) of some small plantings and their impoundment of water.Compared to man-made structures, beaver dams are very cheap.They are of value for stock-watering,sub-irrigation,and water conservation.

Conservation

Coventry,A.F. An experiment in conservation. Canad.Nature 1(2):4-9, illus. Nov./Dec.1939.

The writer"deals at length with an interesting experiment in conservation made on 88,000 acres at King Township,near Toronto.A survey of natural resources found the human population to be 4,600,and since 1840 the wild-life has decreased through human interference.The only large mammals left are deer on Holland Marsh;the imported European

hare is one of the most abundant,first appearing in 1925,and the area seems to be the northern limit for winter survival of the imported ring-necked pheasant.Depletion of natural water supplies and need for reafforestation are also noted.It is pointed out that the findings of the survey are applicable to a large part of sourthern Ontario,and similar surveys to the King Township investigation are recommended for other regions,so that the information gained can be used for conservation and for remedies to overcome increasing tendency towards flood and drought dangers.In no more than a century,about 2.500 acres have been abandoned as no longer fit for cultivation." Abst. Nature [London]145(3686):967. June 22,1940.

Eliot,C.W. National resources for future Americans. Prog.Ed.17(5): 308-315,illus. May 1940.
"Human resources are put 'first and always most important' in this statement by the Director of the National Resources Planning Board. But natural resources - land,water - are indispensable.Also transportation and other facilities and the institutions we have built up.And then there is the fifth,or steering,wheel - planning!"

Pinchot,Gifford. Conservation as a foundation of permanent peace. Conserv.6(3):3-6. May-June 1940.
"Condensed from address before the Eighth American Scientific Congress,Washington,D.C."
See also editorial in Amer.Forests 46(6):261. June 1940.

Wallace,H.A. Wanted:a master conservation plan. N.Y.Times Mag., May 5,1940, pp.6-7,19,illus.
"Secretary Wallace outlines a program which looks to physical,economic and cultural regeneration of farm life."

Dams

Frye,C.L. A small dam for a big job. Engin.News-Rec.124(21):726-728,illus. May 23,1940.
"Built to serve two purposes - water storage for timber and eventually to provide recreational facilities - a reservoir created with the aid of a small dam has been completed in Rhode Island.The design and construction of the earthfill dam and concrete spillway included a number of features,the description of which may be helpful to others faced with the problem of building a small structure embodying modern practice.Of special interest are the flashboard design,the transition of spillway opening from 45 ft. to 20 ft. under a bridge,and the inclusion of a fish ladder.
"The dam was built in 1939 by the Soil Conservation Service of the U.S.Department of Agriculture,in connection with its sub-marginal land utilization program,and in cooperation with the Work Projects Administration of Rhode Island."

Pearce,C.E. Design of Hiwassee Dam - basic considerations. Civ.Engin. 10(6):340-343,illus. June 1940.
Includes rainfall and runoff data for the watershed which is in North Carolina.

Evaporation

Bojakovsky,I.A. About expression of dependance of soil evaporation from the temperature and humidity of the air. Meteorol.i Gidrol. 4(8):121-126. 1938.
In Russian.

Lloyd,David. Evaporation-loss per month from two drainage areas. Roy.Met.Soc.[London]Quart.Jour.66(285):181-193,illus. April 1940.
"Reference,"p.193.
"Monthly data of the apparent loss by evaporation,etc.,of moisture from Vyrnwy and Rivington drainage areas are examined in relation to the rainfall and the temperature.
"After discussing the subject matter,the association and the degree of association are determined on the hypothesis that variations in evaporation-loss can be associated with the variations in rainfall and temperature in a joint functional manner.The regressions have been computed together with the formal evaluation of the significance of the statistics.
"The results show that.when the temperature is constant,the evaporation-loss is proportional to the rainfall;when the rainfall has a given value,the loss increases in relation to the temperature;while the loss is reduced according to the previous rainfall.There is similarity in the relations at Vyrnwy and Rivington."

Farm Forestry

Carter,R.M. Improving and maintaining farm woodlands. Wis.Conserv. Bul.5(5):38-49,illus. May 1940.

Lowe,J.N. The placing of woodland management in the economy of the farm from an agronomic point of view. Conserv.7(1):14-15. May 1940.

Marritt,I.C. Green dollars from the farm woodlot. Forest and Outdoors 6(3):84,92,illus. March 1940.

Olson,G.T. How much does the farmer make from his timber sales? Jour.Forestry 38(6):504-508,illus. June 1940.
"The farmers' lack of interest in sustained yield forestry is often ascribed to lack of profits or to low market prices for timber products.This opinion is partly due to the methods by which foresters appraise the financial possibilities of farm forestry.Costs may be determined on a uniform cost accounting basis wherein all apparently assignable costs must be taken into consideration and prorated.Costs can also be determined according to economic principles wherein only certain costs need be considered for certain purposes.The economic principles involved in appraising the value of the farm forestry enterprise to the farmer are described.The difference in farm forestry costs as determined on the basis of these economic principles and on the basis of a uniform cost accounting method strikingly shows that the farmer is usually getting more from his timber sales than the forester suspects.This economic approach to the farm forestry problem

should be of considerable help to the forester in convincing farmers of the financial advantages of practising forestry."

Trenk,F.B. Tax exemptions of farm woodlands. Wis.Conserv.Bul.5(3): 48-49. March 1940.

Wilcox,R.F. Intensive forestry projects under the provisions of the cooperative farm forestry act. Jour.Forestry 38(6):457-464. June 1940.

"Since many professional foresters have not had an opportunity to become familiar with the intensive forestry project phase of the program that is being developed under the provisions of the Cooperative Farm Forestry(Norris-Doxey)Act,it may be helpful to give some of the background of these projects and review some of the present thinking in regard to their establishment and operation.In order to conform closely with approved policies and procedures,much of the material in this article is either adapted or taken verbatum from existing statements issued by the Farm Forestry Committee of the Department of Agriculture and the Soil Conservation Service.It is presented primarily for the general information of foresters who have not been working closely with the Cooperative Farm Forestry program."

Farm Planning

Hudson,W.E. Engineering aspects of farm planning. Agr.Engin.21(6): 214,218. June 1940.

"Presented before a meeting of the Southern Section of the American Society of Agricultural Engineers at Birmingham,Ala.,February 7,1940."

"In an effort to adequately meet the problem of erosion control, a cooperative plan has been evolved which makes it possible for teachers of vocational agriculture,county agents,members of the Soil Conservation Service,and others to work together in helping farmers to set up farming programs in Georgia...

"Since specific preparation is needed to help the farmer in planning work,a training program has been developed with the objective of giving prospective agriculture teachers,county agents,soil conservation technicians,and other agricultural workers the ability to deal with the major problems of farm planning in the light of the human and economic potentialities,as well as of the soil and other natural resources on the farm.Special reference is placed on the conservation of soil and water.This training program has been made possible through the initiative of the vocational education department,University of Georgia,with the cooperation of the College of Agriculture,the U.S. Soil Conservation Service,and other interested agencies."

Reed,E.H. Economic and social considerations in farm planning. Soil Conserv.5(12):285-287,300,illus. June 1940.

Federal Administration

Key,V.O.,jr. State legislation facilitative of Federal action. Amer. Acad.Polit.and Social Sci.Ann.207:7-13. January 1940.

Relation of Federal regional authorities to state and local units. Amer.Acad.Polit.and Social Sci.Ann.207:7-13. January 1940.

Floods and Flood Control

Bermel,K.J.and Davenport,R.W. Transient flood peaks. Amer.Soc.Civ. Engin.Proc.66(5):995-1002,illus. May 1940.
Discussion of paper by Henry B.Lynch published in November,1939, Proceedings.

Gray,G.H. An over all system for flood control. Conn.Woodlands 5(2): 22-24. May 1940.
Proposes an indefinite number of small ponds distributed on private property over an entire watershed which would act as reservoirs in flood time.

McDonough,Clarence. Grouped reservoirs control floods. Engin.News-Rec.124(23):793-796,illus. June 6,1940.
"Floods that annually have damaged city property and downstream agricultural lands are being placed under control by four dams on the Colorado River above Austin,Tex.With a flood storage capacity of about 3,000,000 acre-feet these dams also provide 147,000 kva electric power, which,with the sale of irrigation water,will amortize the cost of $48,000,000."

Paul,C.H.,Hammatt,W.C.and Creager,W.P. Flood-control methods;their physical and economic limitations.Progress report of committee of the hydraulics division on flood control. Amer.Soc.Civ.Engin.Proc.66(6): 1194-1198. June 1940.
Discussion of the Progress Report of the Committee on Flood Control published in February 1940 Proceedings.

Smith,W.E. Flood-protection data.Progress report of the committee. Amer.Soc.Civ.Engin.Proc.66(6):1225-1228. June 1940.
Discussion of the Progress Report of the Committee on Flood-Protection Data published in April 1940 Proceedings.

Wood,W.J.and Burke,M.F. Transient flood peaks. Amer.Soc.Civ.Engin. Proc.66(6):1104-1108,illus. June 1940.
Discussion of paper by Henry B.Lynch published in November,1939, Proceedings.

Flow

Durand,W.F. Outlook in fluid mechanics. Franklin Inst.Jour.228(2): 183-212. August 1939.
"General non-mathematical discussion of characteristics of laminar and turbulent flow of fluids,indicating necessary and promising lines of progress."

Escande,L. Researches on the flow of water at the entrance of an open canal(Recherches sur l'ecoulement de l'eau a l'entree d'un canal decouvert) Genie Civil 116(9):152-154. Mar.2,1940; 116(10):164-166. Mar.9,1940.
Article in French.

Ward,W.H. Flow of liquids through beds of gramular solids. Engin. 148(3849):435-438. Oct.20,1939; 148(3852):536. Nov.10,1939; 148(3858):698. Dec.22,1939.
Discussion of seepage of water through earth dam or similar structure;differential equation for flow of fluids through homogeneous porous media;general resistance equations.

Government Land Purchases

Brownfield,A.D. The effect of government land purchases on county finances. N.Mex.Stockman 5(1):8,34-35. January 1940.
"Extracts from an address by Mr.Brownfield at the Annual Business and Economic Conference,University of New Mexico,December 8,[1939.]

Grasses and Grassland

Allred,B.W. The role of needle-and-thread grass in the Great Plains. Soil Conserv.5(12):290-292,illus. June 1940.
"References,"p.292.

Ants gather grass seed. Capper's Farmer 51(5):39. May 1940.
"Buffalo grass seed is hard to obtain.Technicians of the soil conservation service had noted that red ants often piled good,viable seed around their mounds in Bell county,Texas.They suggested that Frank Mayborn,who wanted some,try gathering it around ant hills.In 2 days a man with a street sweeper's broom swept 788 pounds of seed and foreign material into piles.This was shoveled into sacks and 201 pounds of pure seed were taken from it by recleaning.Samples were sent to a state branch experiment station where tests showed a germination of 40 per cent.In a similar test,43.4 per cent of the seed gathered from buffalo grass turf germinated.W.J.Neumann,of the soil conservation service,says the grass gathered by Mayborn is sufficient to seed 25 acres if drilled in 3-foot rows and permitted to cover the ground by spreading."
Entire article quoted.

Ares,F.N. Tobosa grass hay values prove equal to the best prairie hays. N.Mex.Stockman 5(1):28-29. January 1940.
"Extracts from a paper read by Mr.Ares at the 1939 annual State College field day on the Jornado Range."

Iovenko,N.G. The effects of grasses and of leguminous plants on the hydrophysical properties of chestnut soils. Pedology 6:37-47. 1939.
Article in Russian.English summary.
"Structure and permeability of soil to water are powerfully influenced by the growth of 'loosely-bushy' grasses,especially perennial rye-grass,and still more by lucerne;the influence of rye-grass extends to 30-40 cm.and that of lucerne much more deeply." Abst. Imp.Bur. Soil Sci.Soils and Fert.3(3):114. 1940.

Putting the "Dust Bowl" back to grass presents problem of truly gigantic proportions. N.Mex.Stockman 5(4):14-15,illus. April 1940.
Quotes B.F.Kiltz,Head of SCS Nursery Division,Southern Great Plains Region,

regarding the development of fields of buffalo grass suitable for economical harvesting of seed for re-vegetation work.

Sarakhov, I.P. The effect of perennial grasses on structure formation in leached chernozems. Pedology 10:1264-1277. 1938.
Article in Russian.
"Grasses vary considerably in their effect on soil structure. Perennial grasses assist the formation of a stable soil structure, whereas annual grasses pulverize the soil and destroy its structure. During their first year perennial grasses have more effect on the soil structure than do leguminous plants. In structure-forming effect Lolium perenne comes first among the grasses, followed by Bromus inermis and Phleum pratense, with Lolium italicum last. Among leguminous plants the first place belongs to Medicago sativa (lucerne) and to clover. Clover has a positive effect on structure formation in the first year but scarcely any in the ensuing years. The contrary is true of lucerne. A mixture of vetch and oats improved the soil structure. Of all annual plants, maize was the most destructive of the soil structure. If the pulverization with maize is taken as 100, then the index of pulverization of the soil with other crops is, potatoes - 94.3, hemp - 93.4, beet - 92.7, soya - 85.3." Abst. Imp.Bur.Soil Sci.Soils and Fert.3(3):114. 1940.

Swallen, J.R. Miscellaneous new American grasses. Wash.Acad.Sci. Jour.30(5):209-217, illus. May 15, 1940.

Weaver, J.E. and Albertson, F.W. Deterioration of grassland from stability to denudation with decrease in soil moisture. Bot.Gaz.101(3): 598-624, illus. March 1940.
"Literature cited," p.624.

Wolff, S.E. Reports of observational studies of grass. U.S.Soil Conserv-Serv.Western Gulf Reg.Soil Conserv.Serv.News 6(3):12-13. Mar./Apr./ May 1940.
Information about Andropogon scoparius (Little bluestem) obtained through tests at nurseries and planting sites in the Western Gulf Region.

Grazing

Daubenmire, R.F. Contributions to the ecology of the Big Bend area of Washington. Forage resources of the Scabland prairies and the effects of grazing upon them. Northwest Sci.13(2):33-37. May 1939.
"The work contains a tabulation of plant frequency as affected by grazing. Due to the influence of heavy grazing, plant succession leads from the virgin prairie, a wheatgrass - bluegrass - cheatgrass association, to an association dominated by bluegrass and small, annual dicotyledonas. Since Agropyron and Bromus together form 90 per cent of the original prairie, any plan of range management which maintains the vegetation in a condition most nearly approximating the original state is the most desirable." M.H. Abs. Imp.Bur.Pastures and Forage Crops. Herbage Abs.10(1):74. March 1940.

Stewart,George,Cottam,W.P.,and Hutchings,S.S. Influence of unrestricted grazing on northern salt desert plant associations in western Utah. Jour.Agr.Res.60(5):289-316,illus. Mar.1,1940.
"Literature cited,"p.316.

Highway Erosion Control

Beland,C.E. Soil science applied to the construction of embankments. Canad.Engin.78(4):28,79-81. April 1940.
Contents: Fill settlement;Slide slope erosion;Sloughing or sliding; Correcting landslides;Maintaining optimum moisture;Checking per-cent compaction;Rolling.

Carrillo,Nabor. Notes on the stability of embankments and earth dams. (Notas sobre estabilidad de taludes y presas de tierra) Ingenieria 14(3):92-100. March 1940.
In Spanish.

Controlling erosion with creosoted-timber ditch checks. Better Roads 9(11):29-30. November 1939.
"Design of two forms of treated timber ditch checks for roadside drainage."

Davis,A.M. Fighting highway erosion. Better Roads 10(4):17-19,31,illus. April 1940.
"Erosion does millions of dollars' damage to roadsides every year; preventive measures would permit much of this money to be expended for regular highway construction activities."
Condensed in Conservation 6(3):32-34. June 1940.

Hendricks,B.A. Cotton netting in revegetation of road-fill slopes. Ariz.Stockman 5(45):6,9,illus. Mar./Apr.1940.
In an effort to devise artificial means by which silt could be controlled on road-fill slopes of mountain highways,several methods were tested at the Parker Creek Experiment Station,near Globe,Arizona.One of the measures that proved to be successful was the use of cotton netting,a mesh made of twisted cotton string with five strands to the inch each way.
Procedures in preparing the slopes and in placing the cotton netting are given.

Murphy,F.C. Slope planting and contour wattling. Highway Mag.30(5): 111-113. May 1940.
"Seventh of a series of articles on preventing erosion of cuts and embankments."

Tilton,G.A.,jr. Bank protection in California.Erosion and flood damage to roads is minimized greatly by revetments and fencing that hold the banks in place. Better Roads 10(5):23-26. May 1940.

Williams,H.C. Highway work and stream bank control experience [in Texas county,Oklahoma]. Pub.Works 71(4):57-58. April 1940.

Hillculture

Davis,Kenneth. The Swiss call it "Bergkultur" - and those who farm hill country are finding it an answer to their soil-erosion problems. Successful Farming 38(6):17,36,illus. June 1940.

Implements and Machinery

How to maintain your valuable soil reserves. Wash.Farmer 65(7):169, illus. Mar.28,1940.
Lists and describes soil-saving tillage implements.

Lint,H.C. Orchard disk especially suited to contour planting. Soil Conserv.5(12):304-305,illus. June 1940.

New plow makes the Model "B" a conservation tool. Farm Impl.News 61(8): 29,illus. Apr.18,1940.
Indicates value of the two-way plow for both irrigation and conservation.

Porterfield,H.G. A modified mower for leaving high stubble. Soil Conserv.5(12):306,illus. June 1940.

Infiltration

Johnson,W.M. Infiltration capacity of forest soil as influenced by litter. Jour.Forestry 38(6):520. June 1940.
"These data are unmistakable evidence that proper care of the forest floor may be of vital importance in flood control.Particularly is this true where floods are caused by intense storms of short duration.Under such conditions the infiltration capacity of the soil surface is the dominant factor in determining run-off.If this capacity is reduced 40 percent in the absence of a litter cover a flash flood may result where otherwise,in the presence of a well-maintained forest floor,run-off would not attain flood flow proportions."

Irrigation and Drainage

Asphaltic concrete lining for irrigation ditches. West.Construct.News 16(3):91-93. March 1940.
Results of field tests of asphaltic concrete lining for irrigation canals,carried out by U.S.Bureau of Reclamation and Asphalt Institute; details of methods used for installation on Yakima project;material characteristics;design of lining;construction operations;placing of lining.

Costello,G.R. Irrigation history and resettlement of Milk River project,Montana. U.S.Pur.Reclam.Reclam.Era 30(6):170. June 1940.
Continued from May issue and to be concluded in August issue.

Mathieu,G. Underground irrigation in Provence.(L'irrigation souterraine en Provence) Prog.Agr. et Vitic.111(13):305-309. Mar.26,1939.
Article in French.
Bibliography,p.309.
The present position of underground irrigation in Provence is

described.The conclusions are drawn that underground watering is clearly superior to surface irrigation for market gardens,orchards and grain crops.This success arises from its good effect on all the properties of the soil.Experiments have shown that plants so treated assimilate greater quantities of nutrients and are thus more fruitful than plants watered from above.A system known as Cavaillon is suggested for practical agriculture,but is not described.The research station at Avignon has carried out some experiments,the results of which are referred to in this paper. Abs. Imp.Bur.Hort.and Plantation Crops. Hort.Abs.10(1):37. March 1940.

Rozov,L.P. Artificial solonetsization of soil as a method of fighting water-losses due to filtration in irrigation-systems. Pedology no.6, pp.60-74. 1939.
In Russian.
English summary, pp.73-74.

Staebner,F.E. Determining an index of supplemental irrigation and its application. Agr.Engin.21(6):215-217,illus. June 1940.

Tisdall,A.L. Drainage of sub-soil water through bores to limestone beds. Commonwealth Engin.27(2):59-61. Sept.1,1939.
Description of novel method for removal of subsoil water in irrigated areas by means of shaft and bore drilled down to Teritiary limestone strata;water drainage into shaft passes down bore and is absorbed in limestone.

Land Classification

Johnston,W.W. Land classification,Columbia Basin Project,Washington. U.S.Bur.Reclam.Reclam.Era 30(6):172-174,illus. June 1940.

Land Management and Utilization

Dambach,C.A.and Good,E.E. The effect of certain land use practices on population of breeding birds in southwestern Ohio. Jour.Wildlife Mangt.4(1):63-76,illus. January 1940.
"Literature cited,"p.76.

Hammar,C.H. Regulation or development for the Missouri Ozarks. Jour.Land and Pub.Util.Econ.16(2):159-167,illus. May 1940.

Hanson,H.P. Democracy in land use planning in Minnesota. Farm Business Notes 207:1-2. March 1940.

Hughes,C.E. They call it land use planning. Farmers Guide 96(12): 285-293,illus. June 15-29,1940.
Cooperative land use planning in Huntington county,Indiana.

Laird,D.G. Differentiation of forest and agricultural lands. Sci. Agr.20(5):291-296. Jan.1940.
"Prior to the establishment of boundaries depending on accessibility and soil character,topography as related to watersheds and natural drainage basins should receive careful scrutiny.Preventive measures

to guard against flooding,lowering of ground water,and erosion,are discussed." Abst. Imp.Bur.of Soil Sci.Soils and Fert.3(3):120. 1940.

Legumes

Burcalow,F.V. Legumes are making a grassland possible. Better Crops with Plant Food 24(5):10-11,38,illus. May 1940.

Colby,W.G. Grasses and legumes for Massachusetts pastures. Mass. State College.Ext.Serv.Soil Auger 1(2):1-4. May 1940.
On improvement of legumes and grasses and their adaptation to Massachusetts pastures conditions.

Davis,R.L.and Villalobos,B.F. Trailing indigo,a promising leguminous forage plant. Soil Conserv.6(1):29-30,illus. July 1940.

Madhok,M.R. Association of legumes and nonlegumes. Soil Sci.49(6): 419-429,illus. June 1940.
"References,"p.429.

Lysimeters

Kreutz,W. Spezialinstruments und einrichtungen der agrarmeteorologischen forschungsstelle des reichsamtes fur wetterdienst in Giessen und Deren Verwendungszweck. Bioklimatische Beiblätter 6(2):76-85,illus. 1939.
Article in German.
"Describes a special lysimeter installation with 6 troughs of 44 sq.ft. surface and 6 ft.depth grouped around an underground instrument room where lysigraphs record the percolation of water through various soils. The details of the lysigraph construction with a sample record are shown.Earth temps.in 4 depths and the wind velocity immediately above the ground are recorded.A sensitive recording balance for investigation of hygroscopicity of soils,dew,evaporation is described in its constructional details.Also an indicator for the height of the groundwater table,based on the float system,and,finally,climatized chambers with clinostats for the exptl.study of wind problems are pictured." H.Landsberg. Abs. Biol.Abs.14(5):8046. May 1940.

Wallihan,E.F. An improvement in lysimeter design. Amer.Soc.Agron. Jour.32(5):395-404,illus. May 1940.
"The purpose of this paper is to report a study in which an attempt was made to correct the error,which heretofore has been inherent in lysimeter studies,by applying an artificial capillary tension in the bottom of the lysimeter.This was done by placing a tensiometer cup near the bottom of the soil mass and withdrawing soil water with controlled vacuum.It should be recognized that the work was exploratory in nature and there was not sufficient replication of conditions to permit exact quantitative conclusions.Rather it was proposed to determine(1)whether or not this method is a practical one for correcting the moisture conditions in lysimeters and(2)the general trend of results obtained as compared with those from the usual type of lysimeter."

Plant Cover

Booth,W.E. Unrecognized initial stage of plant succession and its prominence in soil erosion control in the South-Central United States. Amer.Jour.Bot.26(10):7s. December 1939.
"Abstract of paper to General Secretary,Botanical Society of America, Ohio,1939.
"Five members of the Myxophyceae,usually little thought of as being of great positive economic importance,have been found to be of major importance in the Red Plains Region and oak savannah of Kansas,Oklahoma and Texas.They form a complete non-erosive layer over hundreds of acres of badly eroded and abandoned crop land.In addition to erosion control, this algal growth is valuable in creating an environment favourable to plant succession." Author abstract.
Entire item quoted.

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"Literature cited,"p.336.

Lantow,J.L. Protection plots lengthen life of stock tanks. Ariz. Stockman 5(46):4,8,illus. May-June 1940.

Massey,A.B. Woodland borders can be both beautiful and productive. Va.Wildlife 3(8):6. April 1940.
Border vegetation is useful in preventing erosion,and excessive drying of the forest floor as well as in furnishing cover and food for wildlife.List of nearly 30 groups of plants suitable for planting along the woodland margin with notes on their soil requirements. Abs. U.S.Bur.Biol.Survey no.27, p.28. May 1940.

Roth,C.B. Sees chamiza as wonder plant that may solve drouth menace for the range cattle grower. N.Mex.Stockman 5(5):10-11,24,illus. May 1940.
"Because of long and tough tap roots,the plant has great conservation value.It is a powerful soil binder."

Wundt,Walter. Vegetation and the watercycle.(Pflanzenbedeckung und Wasserkreislauf) Kulturtechniker 42(7/8):195-207,illus. July/Aug. 1939.
In German.
References,pp.206-207.
This is a general discussion and analytical review(24 references) of the relationships of the plant cover to weather condition,with special reference to the water requirements of crop plants.

Pocket Gophers

Dice,L.R. Thomomys the engineer -- friend or foe? Amer.Forests 45(10): 512. October 1939.
Concerns relationship between pocket gophers and erosion and the

biologic or economic value of proposed poisoning campaigns.

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"L.A.Gunther of Woodland and Robbins,California,who farms extensively in Sutter Basin,has built and operated a very successful rain machine on his ranch near Robbins.Machine is built upon old Model 63 International truck,which has been equipped with 9/75 x 20 dual pneumatic tires. Mounted back of cab is Caterpillar 50 Diesel power unit which drives five inch pump with V belts.

"Tower and booms are constructed of iron pipe,welded;and are trussed and guyed with wire cable.One hundred feet of pipe,suspended from booms, extends from each side of pump connection,leading off with five inch from pump and reduced to four inch at about 40 feet from pump.Each 100 feet of pipe has about 42 openings,to which are attached lengths of one inch hose reaching to ground.

"To reduce speed of truck,another transmission was placed amidship,

and arranged to give a speed of about one mile in 12 hours,or 440 feet per hour.Puts about one inch of water on 200 foot strip at rate of two acres per hour,and has covered about 1500 acres this summer at a cost of approximately one dollar per acre.

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"Soil striation, which is widespread on the higher ranges of the South Island,is characterized by the development of parallel striations on a sloping soil surface owing to the sorting of stony material by frost action.In the advanced stages of striation the vegetation is completely destroyed.
"Soil terracing occurs on the wetter mountains where prevailing winds are severe.After the soil is initially exposed,wind channels,which tend to follow contours,are developed.These are then levelled by the frost action forming 'terraces'.Where the supply of stony debris is sufficient the vegetation is finally overwhelmed by its creep."

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"2.These observations have also shown that the pulverized structure of the arable layer favours a more superficial fixation of the water of atmospheric precipitations,than the granular one;this is due to a higher capillary moisture of pulverized soil.
"3.The more superficial fixation of the water of atmospheric precipitations by the soil with a pulverized arable layer,as well as the marked - in such a soil - capillary rise of the water from below, determined greater water losses by such soils,than by soils with a granular arable layer.This was particularly evident in the experiment of 1935.
"4.The higher losses of water by soil with a pulverized arable layer are conditioned also by the somewhat higher temperature of such soil.
"5.The results of these experiments check perfectly with those of the experiments,conducted under field conditions with the application

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here did not want that sort of development. They did not want to boost and surge and scar the face of the Earth. They had other aims and notions. They still have.

"Samuel Mason, Jr., is a farmer in Harford County, and one of the best. He keeps reasonably up to date, but only reasonably so. He drives his own tractor and plows his own land but plows less land now than ever before. Years before there was a Soil conservation Service and an Agricultural Adjustment Administration in Washington, he had netted his crests with pines and had anchored his shoulder-land with meadows to hold his soil. He farms sagaciously, taking time for other forms of cultivation and leads a good life."

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